

Choosing Our Children

The Fifth
of a Series of Monographs
on the Improvement of
the Human Plant

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FOREWORD

Heredity is more of a factor in human life than in plant life—more of a menace—more of a hope.

And nothing in the world of living things responds so quickly to new environments as the human mind—child and adult.

The great value of Luther Burbank's work lies in blazing the path of the application of the forces of heredity and environment to the improvement of the human plant—to the production of better races, better nations, better communities, better families, better individuals.

Having completed the classification of Mr. Burbank's Records as applied to plant life, The Luther Burbank Society now proceeds to the larger task of interpreting the forces of heredity and environment toward the betterment of the human plant through a series of monographs, the titles of which are given on the last page, the fifth of the series appearing herewith.



CHOOSING OUR CHILDREN

HAVE I the right to get married? If already married, have I the right to have children? If I have children, will they be healthy in mind and body, or will they be feeble minded, or consumptive, or epileptic, or so sickly and defective that they will be a burden to themselves and to their parents?

The time is coming when every intelligent man and woman must ask himself or herself such questions as these — direct, personal, practical questions. The new knowledge of heredity makes it imperative to do so. The long controversy about the relative influence of heredity and environment has been settled for all time.

We know now that the possibilities of any individual are predetermined before birth.

When you select a marriage partner, you are predetermining the character of your offspring almost as clearly and as definitely as an architect is predetermining the character of a building when he selects steel or wood or stone as building material.

If your child has a wrong heredity, you can no more make him a normal and healthy and clear-minded individual than you can make a marble palace out of bricks or a brick house out of wood.

Environment and education can do something, but at best they can supply only a veneer. The essential constitution and mind of the individual are born and not made. Such is the clear, emphatic, and thought-provocative teaching of the new heredity.

You, perhaps, are inclined to doubt this. You have seen bright, healthy, robust children in families where the parents were sickly or unintelligent or depraved. You have also seen defective children whose parents were robust and intelligent. Such observations seem to deny the influence of heredity. But the new studies explain these anomalies; explain them not by the citation of theories merely, but by the piling up of illustrative cases, by the massing of evidence that no one can ignore.

If you are to select a marriage partner wisely, and to give your prospective children half a chance in life, you must be familiar with at least the essentials of this new knowledge.

The fact has been emphasized in earlier monographs that we do not inherit our traits exclusively from our parents. We inherit them from grandparents and great-grandparents as well. Indeed, traits of a perfect definite character — our stature, the color of our eyes or hair, our mental abilities — may come by direct inheritance from

ancestors even more remote, after skipping two or three generations.

The present writer, for example, has an extra tooth, an extremely rare phenomenon. One of my cousins also has an extra tooth. No one of our parents or grandparents had teeth different from other people, but investigation has revealed that one of our great-grandparents had an extra tooth. This peculiarity, then, is a family trait which, could we trace it, would doubtless be found reappearing here and there throughout the whole line of ancestry.

What is true of this tangible but unimportant characteristic is equally true of every physical and mental trait, from the most obscure and incidental to the most prominent and essential.

It may fairly be assumed that no individual has any trait of body or mind that was not clearly and definitely present in one or another of his ancestors.

Your child has certain traits and capacities that no ancestors of yours have had, to be sure; but you must recall that your child has two parents and that both ancestral lines affect it equally. Your child has twice as many ancestors as you have. In other words, your marriage partner brings an endowment of characteristics, good or bad, that are weighed against the character-

istics of your ancestry in determining the personality of your child.

And that is why the selection of a marriage partner is far and away the most momentous task that you can ever be called upon to perform.

Messages From Our Ancestors

It is no new thing, of course, to say that the personality of any individual represents more or less clearly the sum of the personalities of all of his ancestors. But the new studies of heredity show that the diverse characteristics of the many ancestors are not blended in the way they were formerly supposed to be blended.

Each individual is now thought of not so much as representing a blend of traits as a mosaic. The new studies show that there are many characteristics of both body and mind that do not tend to become modified through blending, but which may seem altogether to disappear in a given generation, or even for successive generations, and yet reappear with full force in a remote descendant.

This means that each individual bears within his system and may transmit to his descendants a multitude of characteristics that he gives no evidence of having and of which he is quite unconscious. Just what these latent characteristics are can be known only through study of the character-

istics of our forebears.

In a word, then, each of us is the bearer of a message from our ancestry to our posterity. You stand at the meeting point between galaxies of ancestors and other galaxies of prospective progeny. In your system lies the bit of germ-plasm that — miracle of miracles! — conveys the potentialities of good and evil of all the past — the epitome of the racial history of all your myriads of ancestors. Nothing that you can do will markedly change the character of that germ-plasm. Its potentialities are fixed irrevocably. In a sense it is not a part of you; it is a heritage placed temporarily in your stewardship.

But it is open to you to decide whether you will be a true or a false steward. You may determine whether the progeny flowing from that germ-plasm shall be worthy of its best possibilities, or whether they shall exemplify its worst possibilities.

And the whole momentous question hinges on a single decision — your choice of a marriage partner.

All the evolution of the past has been determined by mating selections; all the progress of the future will be conditioned on mating selections.

Viewed in this light, it might almost be said that a couple going to the altar stand before a

court where thousands of ancestral ghosts sit in judgment, ready to chorus approval or to forbid the unworthy bands. It would be well for the world if our dull human ears could hear the verdict — for none but the most foolhardy would dare to ignore it.

It is not necessary, however, to invoke the galaxies of past or future to show the all-importance of the marriage selection. It is quite enough to appeal to your own personal and selfish interests. However slight your interest in the welfare of remote posterity, you at least are concerned about the welfare of your children, and no false modesty should blind you to the fact that you choose your children when you choose your marriage partner.

Ancestors and Marriage Partners

Let us make the illustration concrete. You are, let us say, a young man of seemingly good health, and entirely normal in mind and body. You have fallen in love with a young woman also sound and healthy. Both of you could pass the most rigid life insurance examination. Seemingly you are well suited for each other.

It is true that one of your great-grandparents was mentally unbalanced, but there is nothing very startling in that, for investigation shows that there are strains of insanity in about one-third of

all families. Your parents and your four grandparents were of normal mentality.

So why give the matter a thought?

In point of fact, you need not, were it not for the fact that one of your fiancée's grandparents was subject to epileptic seizures. But if you are wise that fact will make you pause. Insanity and epilepsy are not the same thing, to be sure; but they are allied neuroses which operate in the same way in the scheme of heredity.

It is more than likely, then, that the two neurotic taints if brought together will act like fire and tinder; and your offspring will be neuropathic — feeble minded or epileptic or sexually perverted or destined to become insane.

So your contemplated marriage involves matters far more profound than the mere question of your individual happiness of the moment. It involves the weal or woe of those years of the future when your children will be to you either the supreme blessing or a source of the profoundest remorse and sorrow. Dare you take the hazard?

Before you answer look about you, and consider the families of your neighbors. More than likely some of them include children that are congenitally crippled or scrofulous or "backward" or vicious and depraved.

You have supposed that this was an unavoid-

able misfortune; an inexplicable "interposition of Providence."

You are wrong. The seeming misfortune that is bringing the head of your neighbor in sorrow to the grave was really of his own choosing.

He predetermined that his child should be neuropathic or epileptic or deformed or congenitally blind or deaf or morally depraved when he selected the mother of that child. He made the choice unwittingly of course. But nature makes no allowance for ignorance.

You will invite the same disaster if you act with lack of foresight. There are estimated to be four million children in the United States that are classified as "exceptional." The Binêt tests show that in some of our schools 30 per cent. of the children are below the normal standards of mental development.

Do you wish to be responsible for children that will add to this class?

There are estimated to be 200,000 individuals in the United States that rank as imbeciles. And with the rarest exception the cause of imbecility is heredity — and heredity alone. The parents of an imbecile may be mentally sound and normal; but they carry inherited defects in their germ-plasm or their child would not be congenitally defective.

And this, be it understood, applies to moral

defects no less than to mental. Hereditary instability of the nervous mechanism — weakness of brain and mind — may reveal itself differently in various members of the same fraternity — in one case as feeble-mindedness, in another case as criminality, and yet in others as epilepsy or as insanity or drunkenness or debauchery.

Such details of difference as these imply are often determined by the environment; but the deep-seated defect that underlies them all is a matter of inheritance.

Your Family Tree

All this, you admit, is very harrowing; but you thank your lucky stars that your family is free from any such taint.

Do not be too sure of that. Do you know the names, let alone antecedents, of your eight grandparents? Are you quite sure that no one of them was consumptive, or addicted to alcohol, or the victim of venereal disease? One-tenth of all deaths are due to consumption. So it is more than an even chance that your forebears of the past three generations included at least one victim of this disease.

If such is really the case, there is a strain of susceptibility to the attack of the tubercle bacillus in your system — bred in the bone, as the saying is

— however free you may be from any outward indication of the fact. And the one sure way to bring that latent tendency to the surface, is to choose a mate who carries the same latent hereditary tendency.

Look about you and see how many of your acquaintance, themselves healthy, have scrofulous or nervous or ill-nourished, pale, sickly children. Then ask yourself whether you would knowingly choose such progeny for your own.

The choice lies with you. If you mate with a person of a family strain not susceptible to tuberculosis, your children will in all probability be normal in this regard. Even the children of a consumptive who mates with a normal person may be normally resistant. But to unite two tainted strains, even when the individuals themselves are normal, is to challenge fate; in effect, to invoke a curse on your own progeny. "It is highly undesirable," says Professor C. B. Davenport, "that two persons of weak resistance [to tuberculosis] should marry, lest their children all carry the weakness."

If that simple rule could be known to people in general, and if they could be prevailed upon to act on it, how rapidly would the fight against the great white plague be carried to a successful issue.

Unfortunately the time has not yet come when we can hope that the average young man and woman will consider such teaching as this against their own individual fancies of the moment. But you and I, being rational persons and able to match future happiness against momentary pleasure, may ponder this teaching of the new heredity to our own benefit and that of our prospective children.

Some Thought-Compelling Cases

And all this, be it understood, is no mere theorizing. It expresses probabilities based on the study of actual pedigrees. Other pedigrees that have been studied include a wide variety of diseased conditions.

Here, for example, is a case in which a healthy, normal man and woman marry, without so much as giving a thought to the fact that the father of each had died of heart disease.

But was it an accident that of the four children born to this couple two had heart trouble, and one died of heart disease in infancy?

"Heart disease," says Professor Davenport, "is very common, but it does not fall upon individuals at random, but prevailingly upon strains with an inherent liability or weakness."

The same thing is true of other anomalies of the circulatory apparatus. There are, for ex-

ample, families of "bleeders," persons whose blood does not coagulate normally, so that even very slight wounds expose them to grave danger from hemorrhage. This disease has the peculiarity that it usually affects only the males of the family, yet is transmitted only by the females; that is to say, a man who is a bleeder will have normal children, but his sister, although personally normal, will have sons that are abnormal.

Here is a pedigree in which, in a fraternity of five members, the three men are all bleeders. The two sisters are normal; yet when married to normal men these women have respectively four and five sons, all of whom are bleeders.

The mothers who thus transmitted a condition that was latent in their own systems had normal parents and grandparents; but one of their great-grandparents was a bleeder, and the hereditary character of the infirmity is further attested by two afflicted cousins and by a total of twenty-five bleeders in closely collateral lines in the course of three generations.

This pedigree, and others like it, justify the conclusion that whereas male bleeders may marry with relative impunity, their sisters, though themselves normal, should not have children. The verdict seems harsh, but it is rational.

A similar tendency to "crossed-heredity" —

that is, transmission from mothers to sons, or from fathers to daughters — occurs in connection with a good many abnormalities of the eye.

Thus color-blind men do not have color-blind sons, and as a rule their daughters are also normal. But these normal daughters, married to men of normal stock, have color-blind sons. Similar anomalies of inheritance are found in cases of the much more serious eye defect called coloboma, in which the iris fails to develop normally, and in the condition that leads to total blindness through atrophy of the optic nerve.

It is declared with authority that “no female with the coloboma defect should have children, since all sons will be defective in the structure of the pupil.

“For males with the defect, the danger in marriage is also great, for either all or half of the sons of such a father, although married to a woman from a normal strain, will be defective, but the daughter will not be defective in this respect unless the wife belongs to a strain with this defect.”

For families having the tendency to atrophy of the optic nerve the rule given is this: “A normal son of an abnormal male may marry quite outside of the family with impunity, but a normal daughter may transmit the defect to her sons. A defective male should abstain from having children, for

some of his sons, at least, will probably be defective." (Davenport.)

Even the most heedless person can scarcely fail to pay attention to such a warning as that. The possibility of producing children that are blind — and doing this willfully in defiance of the teachings of heredity — is one that no sane person could contemplate with equanimity.

The Marriage of Cousins

Consider now a pedigree that introduces another complication. A young man falls in love with his cousin. Both are normal; so are their four parents; and they ignore the fact that one of their common grandparents was deaf. The two cousins marry and have four children, of whom two are born deaf.

Here the hereditary defect had skipped two generations, and there is reason to suppose that it would not have reappeared but for the union of cousins.

The justification for this belief is found in the fact that deafness may be due to a good many different conditions, so the marriage of unrelated deaf mutes results in deafness in only about one-fourth of the offspring, the low percentage being due, Professor Davenport believes, to the fact of one parent bringing into the combination what the other parent lacks, thus neutralizing the defect.

But when the parents are related — belonging therefore to the same type of strain of deafness — the percentage of marriages yielding deaf children increases in proportion to the closeness of relationship of the parents.

In one case in which the marriage partners were nephew and aunt, 75 per cent. of the children are deaf.

It must not be supposed from this, however, that there is any peculiar association between deaf-mutism as such and consanguineous marriages. A great variety of defects may be brought to the surface in the same way. Thus Dr. Bemiss (cited by Davenport) reported 833 consanguineous marriages having 3,942 children, of whom about one-fourth died young, and of the remainder more than 1,100 were "defectives," including deaf mutes, the blind, idiots, insane, epileptics, and the deformed and scrofulous.

Dr. Howe reports seventeen consanguineous marriages that produced 50 per cent. of idiots.

The point is that any defects in the germ-plasm tend to reveal themselves in the offspring of cousin marriages. Here is a family in which there is no known taint, but in which it became the fashion for cousins to marry.

In the first generation under observation, healthy cousins marry, and the second generation

shows one individual in three suffering from the condition of muscular lack of tone and responsiveness known as Thomsen's disease.

Three cousin marriages occur in this second generation, five of the six partners being normal.

But in the ensuing generation of eight children born to the three couples, four have Thomsen's disease, two have nerve and lung trouble, and only one is normal. Here the cousin-matings brought out a strain of abnormality that had so completely disappeared that its existence as a family trait had been forgotten.

Illustrations of the evils of cousin marriages may be found on a large scale in every community where physical barriers to migration or social restrictions have led to much intermarrying.

In Martha's Vineyard close inbreeding has led to the prevalence of deafmutism; in Point Judith to idiocy and insanity; in an island off the coast of Maine to "intellectual dullness;" in Block Island to loss of fecundity; in some of the "Banks" off the coast of North Carolina to suspiciousness and mental feebleness; in a peninsula on the east coast of the Chesapeake Bay to dwarfness; in some of the Bahams to idiocy and blindness.

"Thus;" says Davenport, who reports these instances, "there is no taint that results from the marriage of kin; the result is determined by the

specific defect in the germ-plasm of the common ancestor."

It follows that if there is no hereditary weakness in your family — no taint of mental or physical disease — you may marry your cousin without jeopardizing the interest of your prospective offspring. But if there is a heritable taint — and very few families are altogether free from one defect or another — you magnify the defect by the union of two strains that carry it. A totally unrelated person *may* have the same defect; but your cousin is almost *sure* to have it, because you inherit from the same ancestor.

So the marriage of cousins should never be consummated without very careful scrutiny of the common pedigree.

The Individual and the Race

When the marriage of persons related in some degree of cousinship is in question, it is well to recall that the entire population of a country that has been long inhabited and not much subject to immigration, comes to be made up of closely interwoven elements.

To see how inevitable this is, we have only to recall that the descendants of a single individual, were each of his progeny to have on the average five children, amount to more than nine million in the tenth generation. Ten generations span

little more than three centuries; so the total population of America today might be accounted for as descended from a dozen couples or so that came over in the *Mayflower* — provided there had been no intermarrying. But it is equally obvious that marriage partners could not have been found for the successive generations without constant intermarrying.

In point of fact, all students of genealogy know that where a population is established in a restricted territory a few generations suffice to make the entire community related within recognized degrees of consanguinity.

In such communities, family traits and any heritable weaknesses become accentuated. The “racial characteristics” of New Englanders, for example, and of Virginians, furnish illustrations in point. In the long run the laws of heredity operate to bring to the surface the undesirable latent traits, which, when they become sufficiently preponderant in the community, tell of racial degeneration.

Nothing saves a closely inbred race that has reached this stage except the infusion of good new blood from outside.

But in view of this intermingling of descendants, in virtue of which everyone in a given region becomes more or less closely related to everyone else, how does any one escape being

tainted with a variety of heritable defects? Until very recently no one could answer that question in anything but the vaguest way, but the new studies of heredity have supplied a perfectly definite and precise answer, the gist of which is that the same traits are not transmitted to all the offspring of a given couple, and that by proper selection even the worst defect may be bred out of a family.

The Segregation of Characters

Our studies of Mendelian heredity in earlier monographs of this series, with illustrations from Mr. Burbank's experiments, have made it clear how this may come about. But additional illustrations, partly by way of recapitulation, may be desirable because of the extreme practical importance of the subject.

Let us consider, then, the classical experiments of Professor Castle with the guinea-pig.

It appears that if a black and white guinea-pig, both of pure strains, are mated, the offspring are all black. If a pair of these offspring of the first filial generation are interbred, the progeny show three black individuals and one white in each average group of four. If the white members of the fraternity are interbred, they will produce only white offspring. They are to all intents and purposes of a pure white breed. Notwithstanding

the fact that both their parents are black, the tendency to blackness has utterly disappeared from their germ-plasm.

If meantime the black members of the fraternity are interbred, it will presently be revealed that, whereas all look alike, there are deepseated differences between them. Certain among them, if interbred will produce only black offspring. Regardless of the fact that one of their grandparents was white, all tendency to whiteness has disappeared from their germ-plasm. But there are others among the black members of the fraternity which, if interbred, produce both black and white offspring, in the proportion of three to one. Their germ-plasm, like that of their parents, contains elements of both blackness and whiteness.

This seems remarkable enough; and the wonder grows when we learn that however often the experiments are repeated the same results are obtained generation after generation. Of any four grandchildren (on the average) of a black and a white guinea-pig, one is pure black, with no tendency to whiteness; one is pure white, with no tendency to blackness; and two are individually black, but with a latent tendency to whiteness that will make one-fourth of their offspring white.

So the offspring of the same parents — brothers and sisters in the same litter — differ radically

from one another not only in their personal traits but in the latent traits carried in their germ-plasm. Some are pure black, some are pure white, some are mixed; and the same law of heredity accounts for them all.

Now for the application. It appears that most of the heritable human traits we have all along been considering act in inheritance precisely as do the qualities of blackness and whiteness in the guinea-pig.

As regards a large number of conditions, normality may be said to be matched against abnormality as black is matched against white in the animal; normality being dominant.

When a normal person mates with a feeble-minded person, for example, the children are likely to be normal, but with a latent tendency to abnormality. Of the offspring of these children (mated with others of similar heritage), out of each group of four, one will be purely normal, two will be seemingly normal but with a latent tendency to transmit abnormality, and one will be abnormal.

Thus it appears that three out of four of the grandchildren of an imbecile, may be altogether normal, and that one of the three may not have even the latent tendency to the affliction of their grandparent. The other two have the latent tend-

ency, but it need never appear in their offspring if they mate with normal persons.

And this fact is, on the whole, the most wonderful, as it is the most beneficent, revelation of the new heredity. In effect; good health preponderates over ill health in transmission; a trait that has been bred *into* your family through the injudicious mating of an ancestor may be bred *out* for all time by judicious mating. In the course of three generations, purely normal strains may be developed from families that were permeated with abnormality.

And to accomplish this, nothing more is required than the judicious selection of marriage partners.

But, on the other hand, the selection of wrong partners results in abnormal children with equal certainty. Dr. H. H. Goddard of the training School for Defectives at Vineland, New Jersey, has gathered a mass of evidence showing that the mating of two feeble-minded persons produces only feeble-minded offspring.

Similarly Drs. Cannon and Rozanoff, of the Kings Park Hospital for the Insane, find that when both parents have any form of "functional" insanity, "all of their children will 'go insane.' If one parent is insane and the other normal but of insane stock, half of the children tend to become

insane. When both parents, though normal, belong to insane stock, about one-fourth of the children become insane."

Thus these practical studies emphasize anew the lesson that *everything* depends upon the matings.

Salvation Through Wise Selection

In the light of the new knowledge, the message of heredity is not fatalistic.

It is true that your tendencies and mine were fixed irrevocably before birth. From that conclusion there is no escape. You may have inherited a family taint that your brothers and sisters have escaped.

But it does not follow that you must pass that taint on to your children.

On the contrary as we have seen, the traits of your prospective offspring are to be determined very largely by your own choice. If you wish to have strong, healthy, sane children, it is (barring a few exceptional cases) open to you to have such children. You make the choice when you select a marriage partner.

That is the inspiring, the wonderful message of the new heredity.

It shows that it is largely open to your choice whether the good traits that are latent in your germ-plasm shall be operative in the personalities

of your children. You may accentuate strains of abnormality or disease that existed in some of your ancestors, or you may eliminate such strains, accordingly as you choose ill or well. There is no sorrow like that of having offspring that are diseased or depraved.

So you are juggling with your own happiness when you make selection of a marriage partner without considering the coming generation.

As was pointed out in an earlier monograph, the new heredity does not necessarily tell you whom to select as a parent for your children; but it can tell you whom *not* to select.

The one simple, all-encompassing rule is this: do not marry into a family that carries a defect of a kind that is carried also in your own family strain. If, for example, one of your parents died of consumption, you know that susceptibility to the tubercle bacillus is latent in your germ-plasm, even though you personally are thoroughly resistant. It would be the height of folly for you to marry an individual whose germ-plasm carries a similar taint of susceptibility, even though this individual were also personally normal.

Yet the rule may be modified to this extent in accordance with the teaching of the new heredity; if the consumptive member of your direct ancestral line was as far removed as a great-grand-

parent: and if you have at least three brothers or sisters all of whom are normally resistant, you are justified in assuming that (through wise selection) the taint has been bred out of the particular strain to which you belong; and this despite the possibility that you have uncles and aunts and cousins that are consumptive.

All this refers, it will be understood, to the various abnormal conditions that tend to remain latent in a generation and to reappear under unfavorable conditions in later generations.

It must not be overlooked, however, that there are certain diseased conditions that are directly transmissible from parent to child and which therefore do not come within the scope of the formula just given.

For example, there is that protean malady syphilis; there is the painful eye disease called glaucoma; and the systemic condition producing diabetes. Where maladies that thus act as Mendelian dominants are in question, it would seem that the responsibilities of parenthood should not be incurred.

It is obvious that knowledge as to the hereditary relations of various human traits must be of the utmost practical importance for humanity. To secure data as to these, the Department of Experimental Evolution of the Carnegie Institution, with

Professor C. B. Davenport at its head, has for years been collecting human pedigrees. These records are the chief source of what is now known about the heredity of diseased conditions; and already they are sufficiently collated to afford an invaluable guide in the practical matter of the selection of marriage partners.

Your Ancestors and Your Children

But of course you cannot avail yourself of the knowledge supplied by the new studies of heredity, in its practical application to your own case, unless you can gain detailed information as to the traits and characteristics, normal and abnormal, of your own ancestors for at least two or three generations.

In this view the study of family trees takes on new meaning.

Once genealogy was a theme for the dilettante. It now becomes a study of the utmost practicality for every one of us, in our own interests and the interests of our children.

The really important question for each individual is this: How shall I set about to investigate my own pedigree? It is obvious that ordinary genealogical tables are of little value; they fail to give precisely the information about health and disease that is most to be desired. Probably your best resource will be found in your family phy-

sician. In particular if there is in your community a physician of the elder generation, who knew your grandparents and perhaps their grandparents, his recollections and in particular his case-book records may prove invaluable.

Other clues may be gained by consulting aunts and uncles or other relatives, some of whom are pretty sure to take an interest in the family history and to recall facts about the health of your various ancestors, the causes of death, and the like, that will be of value in piecing out your chart of heredity.

It is clear that such investigation of family traits as is here suggested — which becomes doubly arduous when we reflect that it must be applied also to the family of your proposed marriage partner — involves search that will often prove difficult. But when we reflect on the care with which breeders of animals trace and guard the pedigrees of their select stocks of dogs and cattle and horses, it would seem as if intelligent human beings might be willing to safeguard the interests of their progeny with at least as much assiduity.

I would suggest, then, that every reader of these lines should undertake a personal investigation as to his own ancestry, with reference to heritable abnormalities of mind and body.

If you are in doubt as to the best method of

procedure, you can secure practical information by addressing the Eugenics Record Office at Cold Spring Harbor, Long Island, N. Y. Not only will the investigators there be glad of your coöperation in securing genealogical records, but the bureau proffers its services free of charge to persons seeking advice as to the consequences of proposed mating.

Thus you have the advantage of expert advice based upon the fullest collection of records of human mating and their results that is anywhere in existence; indeed the only comprehensive set of records of the kind that has been made for its purely scientific value.

What the scrutiny of your own pedigree teaches you regarding your own germ-plasm will be useful precisely in proportion as you apply the knowledge in the interests of your progeny.

By letting your passion of the moment overmaster your judgment, you may be responsible for offspring that will rebuke you every hour of your life.

By making practical application of your knowledge, you may avail yourself of the hopeful message of heredity and may give yourself reasonable assurance of such a coterie of children and grand-children as may justly fulfill the Scriptural injunction to rise up and call you blessed.

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